

The listing of claims will replace all prior versions, and listings, of claims in the application:

Listing of Claims:

1. (Previously Presented) A method of manufacturing a semiconductor device comprising steps of:

irradiating a linear laser beam to a surface of a semiconductor in a gas atmosphere containing an impurity while scanning the linear laser beam;

applying an electromagnetic energy to the gas atmosphere so as to decompose the gas containing the impurity while irradiating the linear laser beam; and

heating the semiconductor at a temperature not higher than a crystallization temperature of said semiconductor while applying the electromagnetic energy.

2. (Original) The method according to claim 1 wherein the gas atmosphere comprises a gas selected from the group consisting of AsH₃, PH₃, BF₃, BCl₃ and B(CH)₃.

3. (Canceled)

4. (Original) A method of manufacturing a semiconductor device comprising steps of:

providing a semiconductor film comprising silicon formed over a substrate in a chamber;

transferring the substrate in a first direction;

introducing a gas containing a dopant species into the chamber;

irradiating the semiconductor film with a laser light through a window having a slit shape while transferring the substrate so that the dopant species is introduced into the semiconductor film; and

heating the semiconductor film during a laser light irradiation.

5. (Original) The method of claim 4 wherein the semiconductor film is heated not lower than 200 degree C.

6. (Original) A method of manufacturing a semiconductor device comprising steps of:

providing a semiconductor film comprising silicon over a substrate in a chamber;
transferring the substrate in a first direction;
introducing a gas containing a dopant species into the chamber;
applying an electromagnetic energy to the gas in order to activate the gas; and
irradiating the semiconductor film with a laser light through a window having a slit shape while transferring the substrate so that the dopant species is introduced into the irradiated portion of the semiconductor film.

7. (Original) The method according to claim 6 further comprising heating the semiconductor film during a laser light irradiation.

8. (Currently Amended) A method of manufacturing a semiconductor device comprising steps of:

holding a substrate in a chamber;
introducing a gas containing dopant species into the chamber;
producing a plasma of said gas by applying an electromagnetic energy;
introducing said dopant species from said plasma into an entirety of a line-shaped target portion of said substrate;

changing a relative position of the substrate in said chamber; and heating the semiconductor at a temperature not higher than a crystallization temperature of said semiconductor while applying the electromagnetic energy.

9. (Original) The method according to claim 8 further heating said substrate.

10. (Original) The method according to claim 8 wherein said substrate has a semiconductor layer formed thereon.

11. (Original) The method according to claim 8 wherein said gas is selected from the group consisting of PH₃ and B₂H₆.

12. (Original) The method according to claim 8 wherein said gas is selected from the group consisting of AsH₃, PH₃, BF₃, BCl₃, and B(CH₃)₃.

13. (Currently Amended) A method of manufacturing a semiconductor device comprising steps of:

producing a plasma of a gas [[which]] by applying an electromagnetic energy, wherein said gas contains dopant species;

introducing said dopant species from said plasma into an entirety of a line-shaped target portion of a semiconductor film;

changing a relative position of the line-shaped target portion over the semiconductor film; and

heating the semiconductor at a temperature not higher than a crystallization temperature of said semiconductor while applying the electromagnetic energy.

14. (Original) The method according to claim 13 further heating said substrate.

15. (Original) The method according to claim 13 wherein said substrate has a semiconductor layer formed thereon.

16. (Original) The method according to claim 13 wherein said gas is selected from the group consisting of PH₃ and B₂H₆.

17. (Original) The method according to claim 13 wherein said gas is selected from the group consisting of AsH₃, PH₃, BF₃, BCl₃, and B(CH₃)₃.

18. (Original) The method according to claim 13 wherein said semiconductor device includes a thin film transistor.